

50X1-HUM

CLASSIFICATION S-E-C-R-E-T  
 CENTRAL INTELLIGENCE AGENCY  
 INFORMATION FROM  
 FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT   
 CD NO. --

COUNTRY USSR  
 SUBJECT Scientific - Astronomy, geodesy, chemistry  
 mathematics, mechanics, physics  
 HOW PUBLISHED Monthly, bimonthly periodicals  
 WHERE PUBLISHED Moscow  
 DATE PUBLISHED Feb-Apr 1954  
 LANGUAGE Russian

DATE OF INFORMATION 1953  
 DATE DIST. 24 Aug 1954  
 NO. OF PAGES 13  
 SUPPLEMENT TO REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE  
 OF THE UNITED STATES. WITHIN THE MEANING OF TITLE 18, SECTION 793  
 AND 794, OF THE U.S. CODE, AS AMENDED. ITS TRANSMISSION OR REVE-  
 LATION OF ITS CONTENTS TO OR RECEIPT BY AN UNAUTHORIZED PERSON IS  
 PROHIBITED BY LAW. THE REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

SOURCE As indicated

ABSTRACTS OF ARTICLES FROM UNAVAILABLE  
 SOVIET SCIENTIFIC AND TECHNICAL PERIODICALS

Number 2

[Comment: This report presents abstracts taken from issues of the Soviet periodical Referativnyy Zhurnal published February-April 1954. These abstracts are of articles originally published in Soviet scientific and technical serial publications which are not known to be available outside the Soviet Orbit.

The following form is used for each abstract in this report:

General subject, specific subject (Soviet abstract number)

Name of unavailable periodical, volume and/or issue number, date, pages

Author of article

Title of article (Language, if other than Russian)

Abridgment of abstract (Source number)

The source number in parentheses at the end of each abstract refers to the list of sources appended to this report.]

- 1 -

CLASSIFICATION		S-E-C-R-E-T		DISTRIBUTION									
STATE	NAVY	NSRB											
ARMY	AIR	FBI											

50X1-HUM

S-E-C-R-E-T

## I. ASTRONOMY AND GEODESY

Astrometry, Photographic Astronomy (2596)

Soobshch. Gos. Inst. Im. Shternberga, No 94, 1953, pp 27-31

Yakhontov, K. N.

Comparison of Accuracy in Measurement of Extragalactic Nebulae and Stars on Photographs by the 15" Astrograph of Moscow Observatory GAISH

Accuracies of measurements of extragalactic nebulae with those of stellar positions made by the astrograph of Moscow Observatory ( $F = 6.4$  m,  $D = 38$  cm) and measured on Repsold instrument are compared. (1)

Astrometry, Photographic Astrometry (2992)

Soobshch. Gos. Astron. Inst. Im. Shternberga, No 95, 1953, pp 3-7

Uranova, M. I.

Proper Motion of Stars in the Region of the New Lacerta in 1910

Two photographs obtained on the astrograph of the Moscow Observatory in 1910 were used for determination of proper motion of fast-moving stars in the region of the New Lacerta. (2)

Astrophysics, Astrophotometry (3009)

Izv. Glav. Astron. Observ. v Pulkove, Vol 19, No 151, 1953, pp 49-68

Krat, T. V.

Photometry of Astronomic Negatives in the Case of Very High Density of Pictures

Analyzes two methods of measuring overexposed negatives: (1) contact print on high contrast material and (2) weakening of pictures by superficial clearing agent. (2)

Astrophysics, Observations of Stars (3016)

Soobshch Gos. Astron. Inst. Im. Shternberga, No 95, 1953, pp 8-22

Radlova, L. N.

Infrared Magnitudes of Red Stars

Describes method which author applied to obtain infrared stellar magnitudes and color indices by means of aberration-proof camera of the Abastumyan Astrophysics Observatory ( $F = 620$  mm field diameter 60). (2)

Astrophysics Observations of Stars (3017)

Soobshch. Gos. Astron. Inst. Im. Shternberga, No 95, 1953, pp 23-27

Radlova, L. N.

Infrared Stars in the Region of P Cygni

- 2 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R-E-T

The work is a continuation of previous research (see preceding abstract).  
A great number of infrared stars was found in the vicinity of P Cygni on an  
area of 30 sq. degrees. (2)

Geodesy, Methods of Measurement (2861)

Izv. AN Belorusskoy SSR, No 4, 1953, pp 161-169

Barshay, S. Ye.

Equalizing of the Directions of the Central System With an Auxiliary Diagonal

Formulas are derived and a scheme to equalize the triangulation network is  
devised, using linear functions and conditional equations. Formulas are not pub-  
lished. (1)

Stellar Astronomy, Galactic Structure (2671)

Izv. Krymskoy Astro-Fiz. Observ., No 10, 1953, pp 169-182

Shklovskiy, I. S.

Attempt at Brightness Comparison of the Milky Way in Infrared and Photographic  
Rays

A comparison of several sections of the Milky Way radiations in 9750 and  
4250 Å was processed. The low intensity of infrared radiation in the region of  
the anticenter and the strong infrared radiation of the galactic center were  
associated with the observed decreasing spectrophotometric temperature of the  
Milky Way clouds while approaching the galactic center. (1)

Stellar Astronomy, Nebulae (2661)

Soobshch Gos. Astron. Inst. Im. Shternberga, No 94, 1953, pp 32-36

Bugoslavskaya, Ye. Ya.; Masurova, K. S.

Proper Motion of the Planetary Nebula NGC 6852 (GS 4514)

First publication of proper motion of the nebula NGC 6826, determined by  
Ye. Ya. Bugoslavskaya from photographs of the Moscow Observatory from 1933 to  
1935 and of estimates by P. K. Shternberg (1913). (1)

Stellar Astronomy, Star Catalogs (3072)

Soobshch. Gos. Astron. Inst. Im. Shternberga, No 95, 1953, pp 28-34

Karimova, D. K.

Proper Motions of 67 Stars

Proper motions of 67 stars were determined from meridian and photographic  
catalogs. (2)

- 3 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R-E-T

The Sun, General Problems (3102)

Byull. Komissii po Issled. Solntsa, No 8-9 1953, pp 6-10

Rubashev, B. M.

Separation of the General Circulation on the Sun

Assumes that the general circulation on the sun consists of several streams, flowing from the pole to the equator and vice-versa. Finds the zonal pressure gradient three times weaker than the meridional. (2)

The Sun, General Problems (3115)

Izv. AN Belorusskoy SSR, No 5, 1953, pp 197-198

Lepskiy, M. M.

Total Eclipse of the Sun 30 June 1954 in Belorussian SSR

Describes conditions of visibility and the band of total eclipse of the sun on the territory of Belorussian SSR. (2)

## II. CHEMISTRY

Biological Chemistry, Antibiotics (13076)

Vopr. Med. Khimii, Vol 6, 1953, pp 133-137

Ivanov, V. I.; Gintse, L. A.; Chernyakhov, S. I.

Methods of Preparing Nontoxic Antigens

The toxicity of antigens was reduced by acetylation with acetic anhydride for 24 hours. Toxicity was also reduced by treating the antigens with  $\text{POCl}_3$ . (8)

Biological Chemistry, Biochemistry of Animals (13003)

Vopr. Med. Khimii, Vol 6, 1953, pp 45-47

Ivanov, I. I.; Gerasimova, A. V.; Tsimbler, M. L.

Protein Composition of Muscle Plasma

Viscosity of muscle plasma is not lowered in the presence of KCl when ATP is added. Proteins present in muscle plasma do not react with actin to form actomyosin. (8)

Biological Chemistry, Enzymes (12903)

Vopr. Med. Khimii, Vol 5, 1953, pp 188-207

Portyagalov, V. V.; Yakovlev, V. A.

Localization of Cholinesterase in Animal Tissues

- 4 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R E-T

Investigated the localization of specific and nonspecific cholinesterase in animal tissues. (8)

Organic Chemistry, Synthesis (12523)

Dokl. AN Arm. SSR, Vol 16, No 1, 1953, pp 17-26

Mkryan, G. M.; Papazyan, N. A.

Reaction Mechanisms for the Preparation of Diacetylenic Compounds With the Aid of Aqueous Solutions of Cuprous Chloride and Ammonium Chloride

Gives reaction mechanisms for the preparation of diacetylenic compounds using the above catalysts. Prepared dimethyldiacetylene at a 90% yield. (8)

Organic Chemistry, Synthesis (12718)

Izv. AN Arm. SSR, Ser. Fiz.-Mat. N., No 2, 1953, pp 73-78

Babayan, A. T.; Gambaryan, Nina P.

Synthesis of 4, 7-Dimethylquinoline

Describes the synthesis of 4, 7-dimethylquinoline from the hydrolysis of N-(gamma-chlorocrotyl)-meta-toluidine. (8)

Physical Chemistry, Physicochemical Analysis (12491)

Izv. Sektora Fiz.-Khim. Analiza Inst. Obshch. i Neorgan. Khimii AN SSSR, Vol 22, 1953, pp 216-224

Nyankovskaya, R. N.; Firsova V. G.

Irreversible-Mutual System Consisting of the Carbonates and Bromides of Sodium and Potassium

Studied the system Na, K // Br, CO<sub>3</sub> and determined its physical and chemical characteristics. (8)

Physical Chemistry, Physicochemical Analysis (12492)

Izv. Sektora Fiz.-Khim. Analiza Inst. Obshch. i Neorgan. Khimii AN SSSR, Vol 22, 1953, pp 207-215

Nyankovskaya, R. N.

Irreversible-Mutual System Consisting of the Carbonates and Iodides of Sodium and Potassium

Studied the system Na, K // I, CO<sub>3</sub> and determined its physical and chemical characteristics. (8)

- 5 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R-E-T

Physical Chemistry, Physicochemical Analysis (12493)

Izv. Sektora Fiz.-Khim. Analiza Inst. Obshch. i Neorgan. Khimii AN SSSR,  
Vol 22, 1953, pp 170-77

Polyakov, V. D.; Berul', S. I.

Specific Gravity of Melts From the System Consisting of the Carbonates and Chlorides of Sodium and Potassium

Determined the specific gravity of melts from the above system in the region near the melting point. (8)

Physical Chemistry, Physicochemical Analysis (12494)

Izv. Sektora Fiz.-Khim. Analiza Inst. Obshch. i Neorgan. Khimii AN SSSR,  
Vol 22, 1953, pp 298-312

Klochko, M. A.; Uchurkhanov, M. M.

Investigation of the System Silver Perchlorate - Water by the Method of Physicochemical Analysis

Studied the above system and determined its electrical conductivity, density, viscosity, and other physical properties. (8)

Physical Chemistry, Physicochemical Analysis (12496)

Izv. Sektora Fiz.-Khim. Analiza Inst. Obshch. i Neorgan. Khimii AN SSSR,  
Vol 22, 1953, pp 255-260

Urazov, G. G.; Kirakosyan, A. K.

Preparation of the Ammoniates of Cadmium Sulfate and of Cadmium Ammonium Sulfate From Aqueous solutions. Report 1. Solubility Isotherm of the Triple System  $\text{CdSO}_4\text{-NH}_3\text{-H}_2\text{O}$  at  $25^\circ$ Studied the above system at  $25^\circ$  by the solubility method. At least one compound,  $(\text{Cd}(\text{NH}_3)_4(\text{H}_2\text{O})_2)\text{SO}_4$ , was obtained. (8)

Physical Chemistry, Physicochemical Analysis (12497)

Izv. Sektora Fiz.-Khim. Analiza Inst. Obshch. i Neorgan. Khimii AN SSSR,  
Vol 22, 1953, pp 261-271

Urazov, G. G.; Kirakosyan, A. K.

Preparation of the Ammoniates of Cadmium Sulfate and of Cadmium Ammonium Sulfate From Aqueous Solutions. Report 2. Solubility isotherm of the triple system  $\text{CdSO}_4\text{-(NH}_4)_2\text{SO}_4\text{-NH}_3\text{-H}_2\text{O}$  at  $25^\circ$ Studied the above system at  $25^\circ$  using the solubility method. Isolated three congruently dissolved compounds. (8)

- 6 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R-E-T

Physical Chemistry, Physicochemical Analysis (12498)

Izv. Sektora Fiz.-Khim. Analiza Inst. Obshch. i Neorgan. Khimii AN SSSR,  
Vol 22, 1953, pp 92-103

Meyerson, G. A.; Samsonov, G. V.

Investigation of Fusibility Diagrams of the System Boron-Carbon and the Nature of the Phases in This System

Studied the above system and determined its physical constants. (8)

## III. MATHEMATICS

Differential Equations, Ordinary Differential Equations (2946)

Inzhenernyy Sbornik, Vol 15, 1953, pp 89-98

Mitropol'skiy, Yu. A.

Forced Vibrations in Nonlinear Systems During Passage Across Resonance

Examines three examples of passage across resonance in vibrating systems with one degree of freedom, with "small" nonlinearity and nonconservativeness, and with "slowly" changing parameters. (4)

Differential Equations, Ordinary Differential Equations (2951)

Izv. AN Arm. SSR, Ser. Fiz.-Mat. i Tekh. N., No 2, 1953, pp 55-71

Arakelyan, T. T.

Calculation of Girders on a Continuous Soil Base

Determines the law of reactive pressures for a girder of specified length, width, and rigidity on a water-saturated clay stratum. (4)

Differential Equations, Partial Differential Equations (2595)

Soobshch. AN Gruz. SSR, Vol 14, No 3, 1953, pp 257-260

Shatashvili, S. Kh.

Reduction of a Mixed Problem in the Theory of Steady Elastic Vibrations to Fredholm's Integral Equations

Considers a plane problem in the theory of elastic vibrations for the case in which the elastic medium fills up a finite singly connected region on whose boundary are given the tangential component of stress and the normal component of displacement. (3)

- 7 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R-E-T

Differential Equations, Partial Differential Equations (2961)

Dokl. AN Arm.SSR, Vol 16, No 3, 1953, pp 65-71

Stability in a Closed Region of the Dirichlet Problem for Linear Equations of the Elliptic Type

Examines linear equations of the second order of the elliptic type with sufficiently smooth coefficients. Gives definitions for point of stability and for the Dirichlet problem which is stable in a closed region. (4)

Functional Analysis (2628)

Izv. Kazanskogo Fil. AN SSSR, Ser. Fiz.-Mat. i Tekh. N., No 3, 1953, pp 59-86

Svirskiy, I. V.

An Evaluation of the Accuracy of Approximation Methods for Determining the Frequency of Vibrations

Discusses two methods of approximating from below the characteristic numbers of a positively defined operator with a discrete spectrum. (3)

Geometry (2685)

Metsniyereba da Tekhnika, No 6, 1953, pp 25-29

Kokaia, V.

Division of Arcs and Angles Into an Arbitrary Number of Equal Parts

[No abstract given.] (3)

History of Mathematics, Biography (2793)

Izv. AN Azerb. SSR, No 4, 1953, pp 35-50

Rozenfel'd, B. A.

Mathematical Works of Nasiredina Tusi (Azerbaijani)

Outlines the major works of N. Tusi (1201-1274). His writings were mainly on geometry and trigonometry and include an exposition of Euclid's "Elements." (3)

History of Mathematics, Biography (2795)

Vest. Vozdushnogo Flota, No 6, 1953, pp 71-76

Vinogradov, R.

An Outstanding Soviet Scientist (The 65th Anniversary of the Birth of V. P. Vetchinkin)

A short outline of the scientific activity of V. P. Vetchinkin. (3)

- 8 -

S-E-C-R-E-T



50X1-HUM

S-E-C-R-E-T

History of Mathematics, Biography (2796)

Metsniyereba da Tekhnika, No 8, 1953, pp 45-46

[No author given.]

August 15, 1953 Marks the 90th Anniversary of the Birth of Aleksey Nikolayevich Krylov. (Georgian)

[No abstract given.] (3)

Probability Theory, Mathematical Statistics (2678)

Materialy po Inzhenernoy Geologii, Metallurgizdat, No 3, 1953, pp 69-95

Kriger, N. I. and Yemel'yanova, Ye. V.

An Experiment in the Application of the Methods of Mathematical Statistics to the Study of Porosity of Silt

Briefly explains the basic concepts and methods of mathematical statistics, using as illustrations the distribution of porosity in silt. Shows that this distribution follows the normal law. (3)

Probability Theory (3012)

Voyenny Vestnik, Vol 12, 1953, pp 50-57

Krasner, N.

Elementary Axiomatic Exposition of Probability Theory

[No abstract given.] (4)

Theory of Functions of a Complex Variable (2559)

Izv. AN Arm. SSR, Ser. Fiz.-Mat., No 2, 1953, pp 5-11

Tamadyan, A. P.

Theorem of M. V. Keldysh

Considers a bounded function greater than zero in an arbitrary finite singly connected region in the  $z$  plane. Proves a theorem on the completeness of a system of polynomials. Shows how this strengthens an earlier theorem by M. V. Keldysh. (3)

Theory of Functions of a Real Variable (2915)

Soobshch. AN Gruz. SSR, Vol 14, No 7, 1953, pp 393-398

Dzhvarsheysvili, A. G.

Fubini's Theorem for the Double Integral of D'Anjois

Presents without proof several theorems on sufficient conditions for the possibility of reducing a double integral to the iterated type. (4)

- 9 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R-E-T

## IV. MECHANICS

Elasticity and Plasticity, Dynamic Problems (2689)

Inzhenernyy Sbornik, Vol. 16, 1953, pp 87-108

Bondar', N. G.

Solution of the Problems of the Dynamics of Rod Systems by Using Electric Models

Examines means of using passive electrical circuits made from reactive elements for the solution of problems of dynamics of elastic systems, based on L. A. Lyusternik's proposed method (Usp. Mat. Nauk, Vol 4, No 2, 1949) of modeling symmetrical matrices. (5)

Elasticity and Plasticity, Mechanical Properties and Testing of Materials (3166)

Izv. AN Turkm. SSR, No 4, 1953, pp 80-83

Rodov, G. S.

Plastic Deformation of High-Strength Wires

Author investigates possible losses of stress in a prestressed reinforcement owing to creep in the wire and recommends a momentary increase of prestressing for the elimination of these losses. (6)

Elasticity and Plasticity, Mechanical Properties and Testing of Materials (3176)

Dok Ak Nauk Uzbek SSR, No 8, 1953, pp 7-10

Ismailov, M. I.; Dolmatov, K. I.

Concerning the Force in Extracting Cotton From the Boll

Presents theoretical considerations and a short description of testing apparatus and also gives a comparison of experimental and theoretical results. (6)

Elasticity and Plasticity, Plasticity, Creep, Strength (2673)

Inzhenernyy Sbornik, Vol 16, 1953, pp 173-176

Mikeladze, M. Sh.

Bend of a Beam Stretched by Centrifugal Forces

Gives a method for determining the load, characteristic at the start of plastic deformation in a section of a cantilever in the vicinity of fastening, and also a method of calculating a cantilever in a limiting state. (5)

- 10 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R-E-T

Elasticity and Plasticity, Shells and Plates (2658)

Izv. Kazansk. Filial. AN SSSR, Seriya Fiz-Mat i Tekhn Nauk, No 3, 1953, pp 3-17

Galimov, K. Z.

Certain Problems in the Theory of Shells in the Case of Arbitrary Shifts

Examines three consecutive conditions of the final deformation of a shell, separation of which is expedient to the solution of the problems which lead to an investigation of qualitatively different conditions. (5)

Elasticity and Plasticity, Shells and Plates (2659)

Izv. Kazansk. Filial. AN SSSR, Seriya Fiz-Nat i Tekhn Nauk, No 3, 1953, pp 18-38

Vinokurov, S. G.

Temperature Stresses in Shells and Plates

The general equation of the theory of elasticity and the theory of thin shells is transposed in the case of nonuniform heating by the introduction of complementary functions of stress. A number of examples are given. (5)

General Mechanics, History of Mechanics (2820)

Vestnik Vozdushnogo Flota, No 12, 1953, p 88

Thirty-Five Years of TsAGI

[No abstract given.] (6)

General Mechanics, History of Mechanics (2822)

Vestnik Vozdushnogo Flota, No 12, 1953, pp 63-71

Documents on the Creative Activity of A. F. Mozhayskiy

[No abstract given.] (6)

Hydromechanics, Aerodynamics (2884)

Izv. AN BSSR, No 1, 1953, pp 35-38

Varankin, Yu. V.

Investigations of the Aerodynamics of a Vortex Furnace of Kolobanov's System

Modeling of furnaces intended for the burning of solid particles of fuel suspended in an air current, and experimental investigations on the aerodynamics of a model (without burning) and an operating version (during burning) of a vortex furnace of Kolobanov's system with peat. (6)

- 11 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R-E-T

Hydromechanics, Filtration of Liquids Through a Porous Medium (3051)

Inzhenernyy Sbornik, Vol 16, 1953, pp 203-210

Arkhangel'skiy, V. A.

Calculations of One-Dimensional Unsettled Motion of Ground Water by the Method of Finite Differences

Presents a method based on the application of equations of finite differences for the calculation of the movement of ground water. The author takes two equations as points of departure in his discussion: equation of continuity and equation of movement. (6)

## V. PHYSICS

Atomic Physics, Cosmic Rays (2502)

Izv. AN Arm SSR, Ser. Fiz.-Mat., Iestestv. i Tekhn. N., Vol 6, No 3, 1953, pp 65-73

Saakyan, G. S.

Generation of Pi-Mesons in Dense Substances

Calculates the energy spectrum and the dependence on depth of the number of pi-mesons formed by nucleons in a dense substance. (7)

Electricity, General Questions (2699)

Dokl. AN Uzbek. SSR, No 1, 1953, pp 17-21

Avak'yants, G. M.

Theory of Surface Ionization

Regarding a solid body and an adsorbed atom as a large diatomic molecule, the author calculates the ratio of the number of evaporated ions to the number of evaporated neutrals ( $n^+/n_0$ ). (7)

Molecular Physics, Liquids (2597)

Izv. AN Azerb. SSR, No 6, 1953, pp 29-41

Study of Density, Compressibility, and Thermal Expansion of Liquids Which Are Unsaturated or Saturated With a Gas

Discusses apparatus used in the study of density, compressibility, and thermal expansion of liquids, mostly petroleum. (7)

Radiophysics, Superhigh Frequencies (2945)

Izv. Leningr. Elektrotekh. In-ta, No 25, 1953, pp 3-15

Zhivotovskiy, A. I.; Kraychik, A. B.

Elements of the Design of Superhigh Frequency Generators and Amplifiers

Discusses the design of superhigh frequency generators having resonators in the form of segments of coaxial long lines. (7)

- 12 -

S-E-C-R-E-T

50X1-HUM

S-E-C-R-E-T

SOURCES

1. Referativnyy Zhurnal -- Astronomiya i Geodeziya, No 3, 1954
2. Ibid., No 4, 1954
3. Referativnyy Zhurnal -- Matematika, No 3, 1954
4. Ibid., No 4, 1954
5. Referativnyy Zhurnal -- Mekhanika, No 3, 1954
6. Ibid., No 4, 1954
7. Referativnyy Zhurnal -- Fizika, No 3, 1954
8. Referativnyy Zhurnal -- Khimiya, No 2, 1954

- E N D -

50X1-HUM

- 13 -

S-E-C-R-E-T